



SAPIENZA
UNIVERSITÀ DI ROMA
Dipartimento di Fisica

Contribution ID: 10

Type: **not specified**

The old and the new muon $g-2$ puzzle

Monday, 26 September 2022 14:30 (30 minutes)

The recent muon $g-2$ measurement at Fermilab confirms the previous BNL result, hence emphasizing the longstanding discrepancy between the experimental value and the Standard Model (SM) prediction based on the use of $e^+e^- \rightarrow \text{hadrons}$ data to evaluate the leading hadronic vacuum polarization (HVP). This is what I call the “old” muon $g-2$ puzzle. On the other hand, a recent lattice result by the BMW collaboration shows a tension with the above mentioned SM prediction (this constitutes the “new” $g-2$ puzzle).

In this talk I plan to summarize the overall situation concerning the two muon $g-2$ puzzles and, in particular, I discuss the possibility that new physics may contribute to the $e^+e^- \rightarrow \text{hadrons}$ cross-section to solve or at least alleviate the new $g-2$ puzzle.

Presenter: MASIERO, Antonio (Istituto Nazionale di Fisica Nucleare)

Session Classification: Physics Beyond the Standard Model